

## WHAT IS CLAIMED IS:

- 1 1. A sintered body, comprising:
  - 2 sintered metal particles forming a sintered structure and having a
  - 3 maximum particle size of 100  $\mu\text{m}$  or smaller; and
  - 4 carbon being dispersed in the sintered structure in an amount of 0.05
  - 5 to 1.0% by mass based on a total mass of the sintered body.
- 1 2. A sintered body according to Claim 1, wherein the sintered body has  
2 been heat-treated.
- 1 3. A sintered body according to Claim 1, wherein the sintered body  
2 forms at least teeth of a sprocket of a silent chain.
- 1 4. A sintered body according to Claim 1, wherein the sintered body is a  
2 high-strength part of an internal combustion engine.
- 1 5. A sintered body having a sintered structure derived from a metal  
2 powder and containing carbon dispersed in the sintered structure in an amount  
3 of 0.05 to 1.0% by mass based on a total mass of the sintered body, the metal  
4 powder having a particle size of 75  $\mu\text{m}$  or smaller.
- 1 6. A sintered body according to Claim 5, wherein the sintered body has  
2 been heat-treated.
- 1 7. A sintered body according to Claim 5, wherein the sintered body  
2 forms at least teeth of a sprocket of a silent chain.
- 1 8. A sintered body according to Claim 5, wherein the sintered body is a  
2 high-strength part of an internal combustion engine.

1 9. A sintered body produced from a metal powder mixture, the metal  
2 powder mixture including a metal powder having a particle size of 75  $\mu\text{m}$  or  
3 smaller, a graphite powder in an amount 0.1 to 1.0% by mass and a powder  
4 lubricant in an amount of 0.05 to 0.80% by mass based on a total mass of the  
5 metal powder mixture.

1 10. A sintered body according to Claim 9, wherein the sintered body has  
2 been heat-treated.

1 11. A sintered body according to Claim 9, wherein the sintered body  
2 forms at least teeth of a sprocket of a silent chain.

1 12. A sintered body according to Claim 9, wherein the sintered body is a  
2 high-strength part of an internal combustion engine.

1 13. A production method of a sintered body, comprising:  
2 preparing a metal powder mixture, the metal powder mixture  
3 including a fine metal powder having a particle size of 75  $\mu\text{m}$  or smaller, a  
4 graphite powder in an amount of 0.1 to 1.0% by mass and a powder lubricant  
5 in an amount of 0.05 to 0.80% by mass based on a total mass of the metal  
6 powder mixture;  
7 compacting the metal powder mixture to provide a green compact; and  
8 sintering the green compact.

1 14. A production method according to Claim 13, wherein the sintered  
2 body comprises sintered metal particles forming a sintered structure and having  
3 a maximum particle size of 100  $\mu\text{m}$  or smaller.

1 15. A production method according to Claim 13, wherein the sintered  
2 body contains carbon in an amount of 0.05 to 1.0% by mass based on a total  
3 mass of the sintered body.

1 16. A production method according to Claim 13, wherein the metal  
2 powder is a blend of an iron-based powder and an alloying metal powder.

1 17. A production method according to Claim 13, wherein said preparing  
2 includes granulating the metal powder to form primary particles having a  
3 particle size of 75  $\mu\text{m}$  or smaller into secondary particles having a particle size  
4 of 180  $\mu\text{m}$  or smaller.

1 18. A production method according to Claim 13, wherein the metal  
2 powder mixture is compacted while being heated to a temperature of 100°C or  
3 higher.

1 19. A production method according to Claim 18, wherein said compacting  
2 includes preheating a die to a temperature of 120°C or higher, and then,  
3 compressing the metal powder mixture into the preheated die.

1 20. A production method according to Claim 13, wherein said compacting  
2 includes applying a die lubricant to a die, and then, compressing the metal  
3 powder mixture into the die.

1 21. A production method according to Claim 13, wherein the green  
2 compact is sintered at a temperature of 1180°C or higher.

1 22. A production method according to Claim 13, further comprising  
2 heat-treating the sintered compact.